

EXPLANATION OF THE PLATES.

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PLATE LXVII.

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3. Measurements of the Red Corpuseles of the Blood of
Hippopotamus amphibius, *Otaria jubata*, and *Trichechus*
rosmarus. By GEORGE GULLIVER, F.R.S.

[Received August 5, 1874.]

Having on the 22nd of July, 1874, procured some blood from the first two of these animals and quickly thereafter made many careful measurements of the red corpuscles, I beg leave to submit a summary of the results, together with those concerning *Trichechus*, to the Society. Through the kind and judicious care of Mr. Bartlett and his son, and the skilful management of the keepers, no difficulty whatever was experienced in making a small puncture in the ear of the Hippopotamus and in the foot of the *Otaria*, from which in each case a drop of pure blood flowed and was well collected, apparently without the animal being at all sensible of this very slight operation.

Hippopotamus amphibius, a female, reported to be twenty-one years of age.—The average diameter of the red corpuscles proved to be $\frac{1}{3429}$ of an English inch. This is very slightly smaller than the same corpuscles of human blood, and somewhat larger than those of the Rhinoceros or of any other Pachyderm in which I have examined them, except the two Elephants and the *Hyrax*. In the African Elephant Mandl discovered that the corpuscles are the largest known of Mammalia; and my observations soon afterwards proved that the Indian Elephant has also corpuscles of similar magnitude; and, as I discovered, they are of about the same size in *Myrmecophaga* and *Orycteropus* (Proc. Zool. Soc. Jan. 24, 1854, and Feb. 10, 1870). In these two Edentates the red corpuscles of the blood have a mean diameter of $\frac{1}{2769}$ of an inch, in the Rhinoceros $\frac{1}{3765}$, in *Hyrax* $\frac{1}{3308}$. The exceptionally large size of the red blood-corpuscles of such a small species as *Hyrax* would be alone sufficient to indicate that it is not a regular member of the order Pachydermata.

Otaria jubata, a female.—The mean diameter of the red blood-corpuscles proved to be $\frac{1}{3060}$ of an inch; while those of man measure, on the average, $\frac{1}{3200}$. Thus in *Otaria* these corpuscles are larger than those of any of the Carnivora recorded in my Tables appended to the Sydenham Society's edition of Hewson's works. In

all my then measurements of the red corpuscles in this order those of *Phoca* proved the largest; and now this size is exceeded in *Otaria* and *Trichechus*. The smallest red blood-corpuscles in the Carnivora occur in some species of *Viverra*, *Paradoxurus*, and *Herpestes*. But between several sections of this order there are curious irregularities in the differences of the size of these corpuscles, which, as our knowledge extends, will probably prove of physiological significance: meanwhile I have already shown that they have taxonomic value; for example, by the comparative magnitude of the red blood-corpuscles alone the Canidæ may be easily distinguished from Viverridæ.

Trichechus rosmarus.—This animal (the Morse or Walrus of popular books) has the red blood-corpuscles still larger than those of the Eared Seal. Some years ago a young Walrus arrived in a sickly state, and died soon afterwards, at the Society's menagerie, when I examined its blood and found it very rich in red blood-corpuscles, and consequently of high specific gravity. Referring to my notes, it appears that the mean of numerous measurements of the diameter of the corpuscles was $\frac{1}{2769}$ of an inch, being exactly the same as the average diameter of the corresponding corpuscles of the two great Edentates already mentioned. And this conclusion is confirmed by recent measurements of the old specimens of the blood-corpuscles of *Trichechus*; they were so long since dried, and yet are still beautifully perfect. Thus of all apyrenæmatous red corpuscles, those of *Elephas*, *Myrmecophaga*, *Orycteropus*, and *Trichechus* are the largest at present known.

The red blood-corpuscles of man are among the largest of the Mammalia. No British animal of this class has them so large; in all my former observations red corpuscles distinctly larger than of man were found only in six Mammalia, to wit, *Myrmecophaga jubata*, *Orycteropus capensis*, *Bradypus didactylus*, *Elephas indicus*, *E. africanus*, and *Balæna boops*. To these must now be added *Trichechus rosmarus* and *Otaria jubata*.

Structure and Form.—The red blood-corpuscles of the Hippopotamus, *Otaria*, and *Trichechus* conform in structure and shape to the regular apyrenæmatous type. Nor among the Mammalia has any indubitable exception to the apyrenæmatous character of these corpuscles yet been found.

4. Contributions to a History of the Accipitres or Birds of Prey. By R. BOWDLER SHARPE, F.L.S., F.Z.S., &c., of the Zoological Department, British Museum.—I. On the Females of the Common and South-African Kestrels.

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(Plate LXVIII.)

A short time ago I received from my friend Mr. Bygrave Wharton a pair of Common Kestrels which he had recently obtained in Hert-